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(54) **ROOF TOOL BOX**

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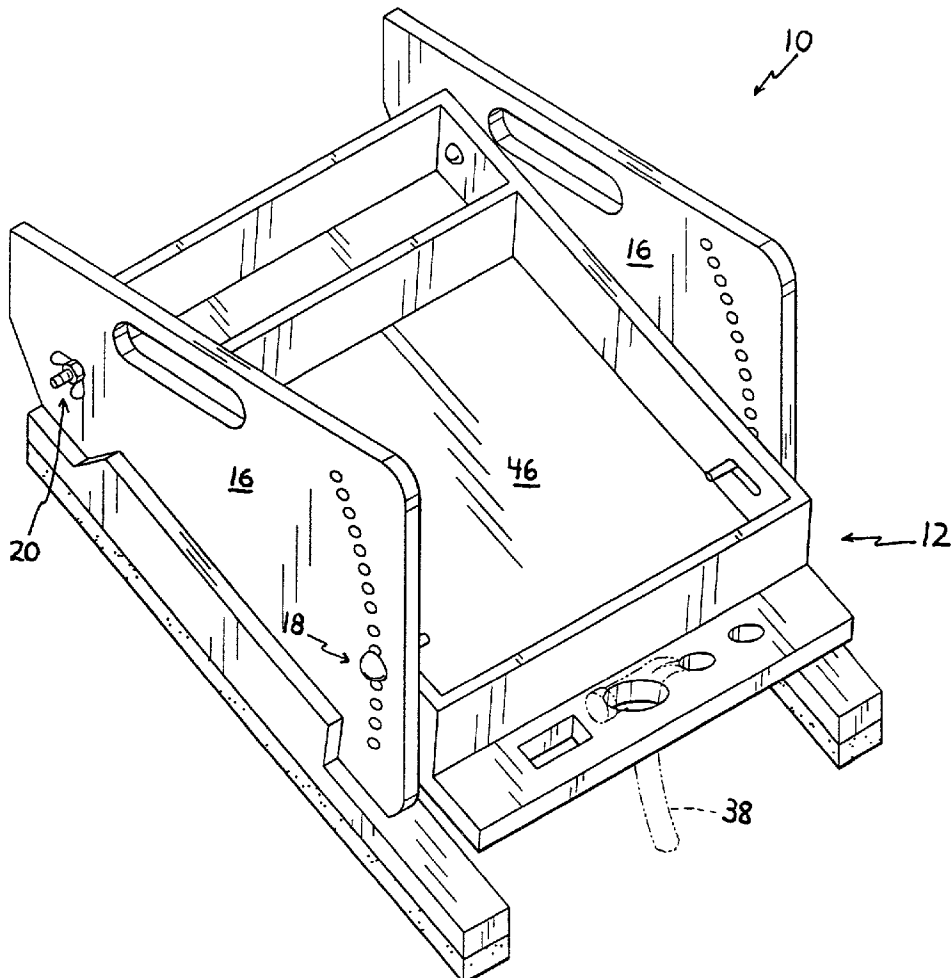
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(57) **ABSTRACT**

A knockdown roof tool box for use by roofers, painters, homeowners, and others who need to work on inclined or pitched surfaces is presented. The roof tool box contains a positioning mechanism which is fully adjustable with respect to almost any inclined surface. The roof tool box is made up of a large central tray portion, a pair of support legs, and a pair of adjustable pin assemblies. In assembled position, the tray support legs are positioned perpendicularly to the sides of the tray. The tray is pivotally hinged to the support legs by a removable wing nut and bolt assembly. The adjustable pin assembly includes movable pins, which are insertable through a series of arcuate aligned holes provided in the support legs allowing the tray to be pivotally and selectively positioned at different attitudes with respect to the roof.



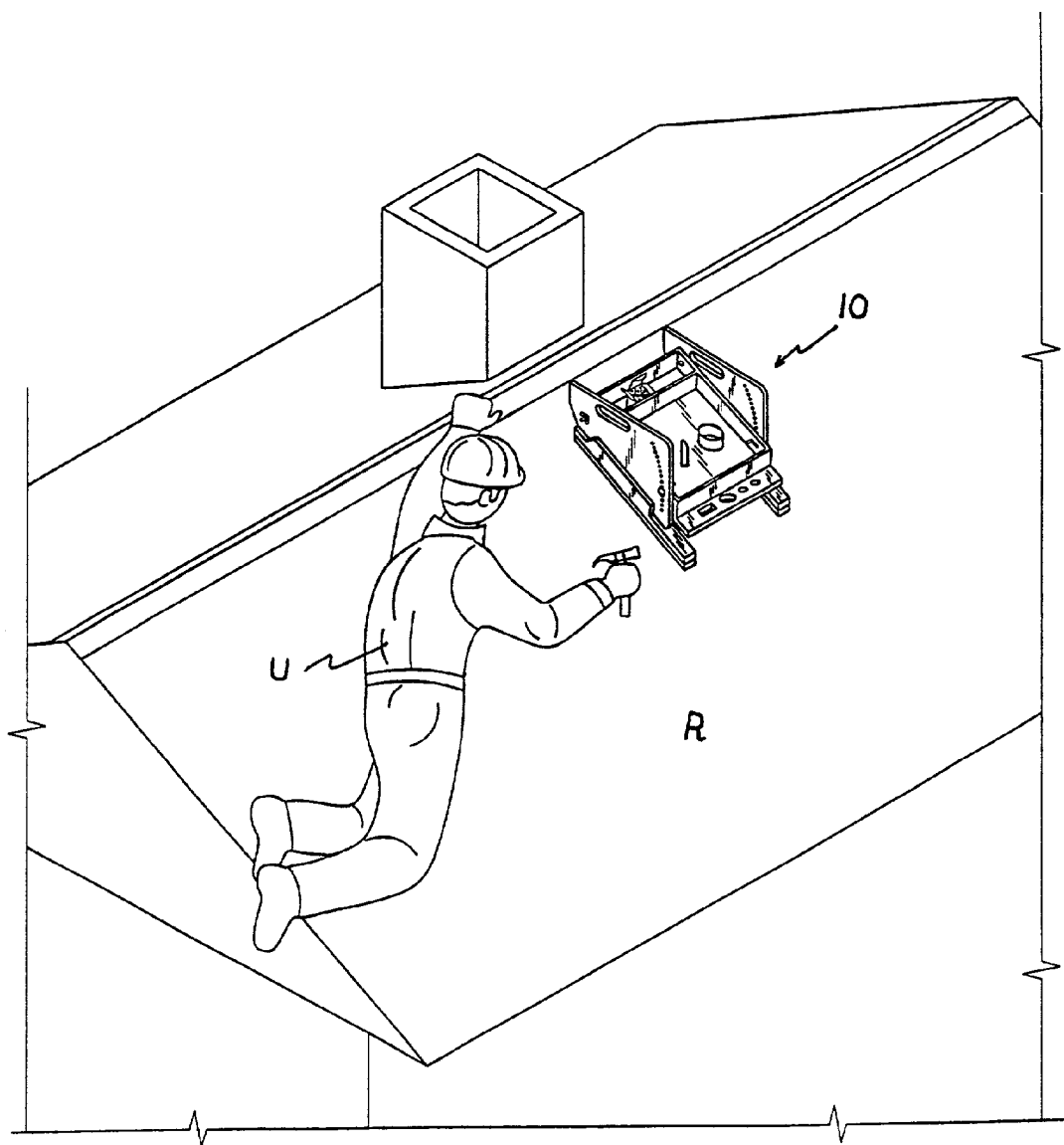


Fig. 1

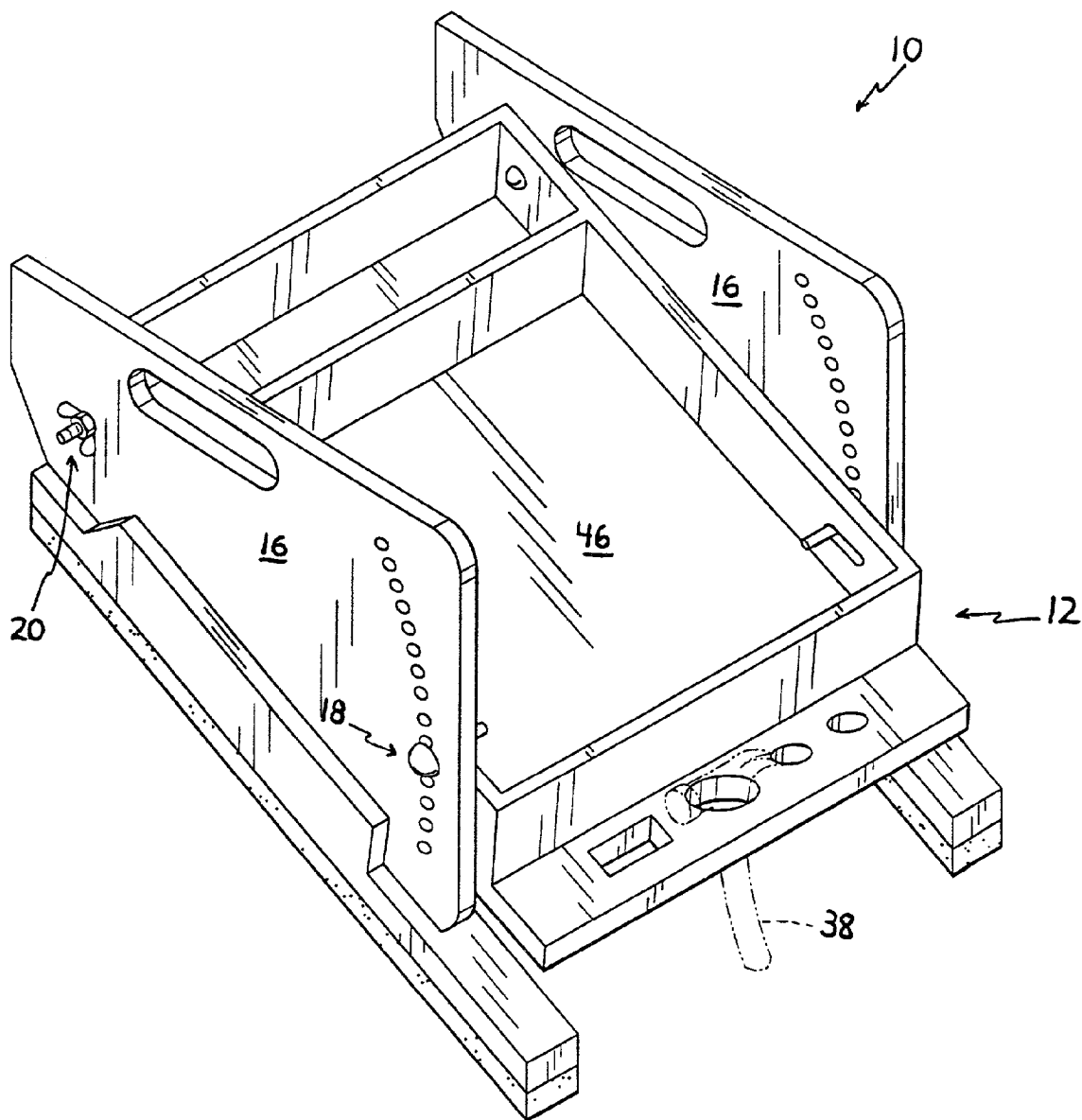


Fig. 2

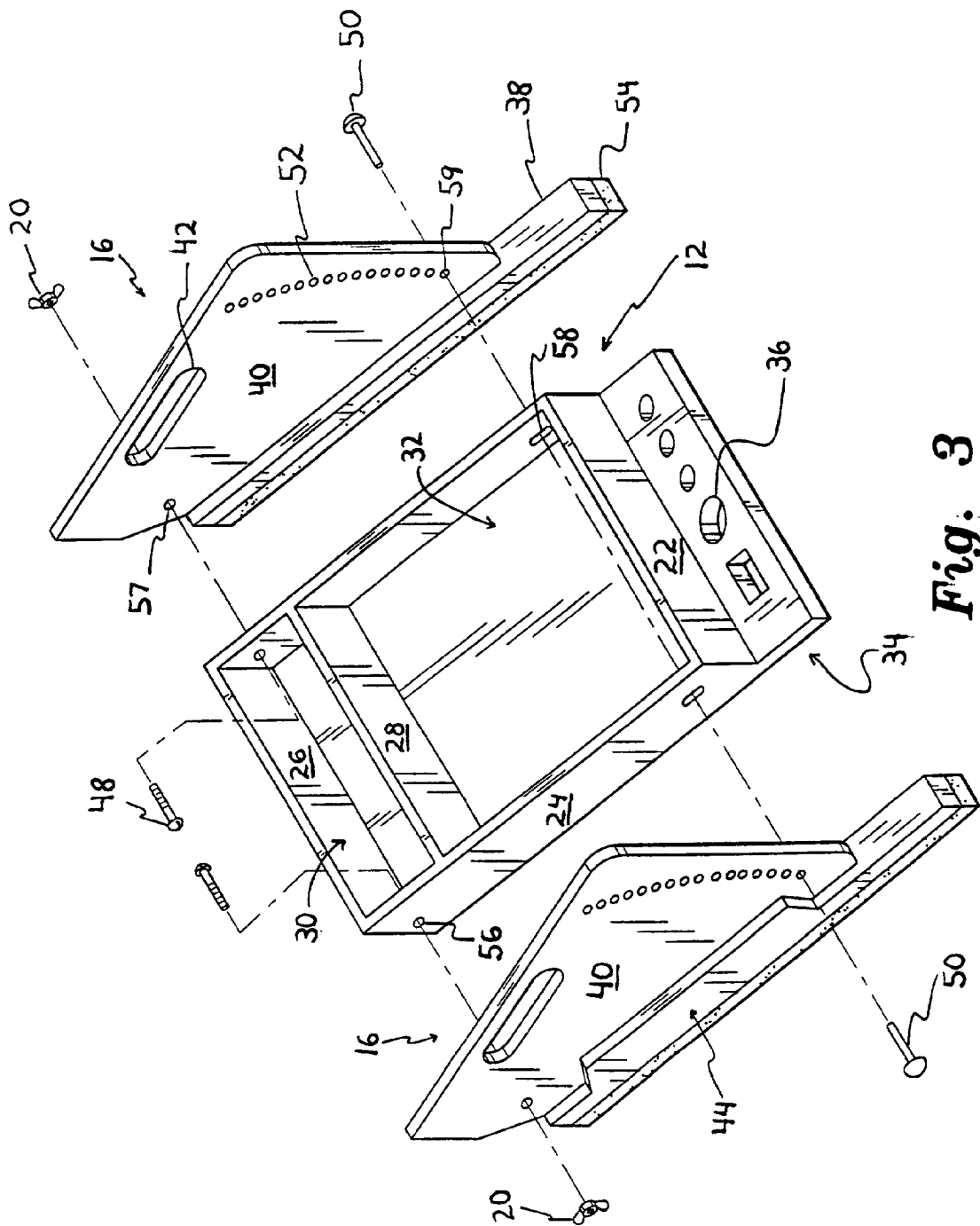


Fig. 3

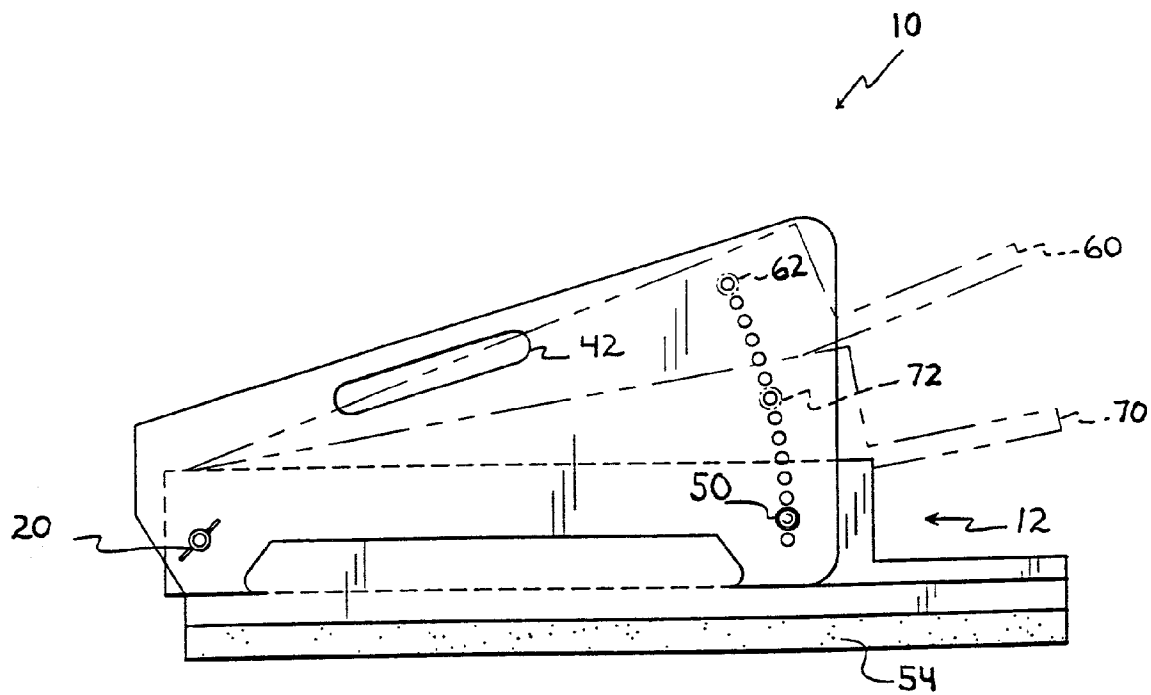


Fig. 4

ROOF TOOL BOX

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Patent Application Serial No. 60/230,719, filed Sep. 7, 2000.

BACKGROUND OF THE INVENTION

[0002] 1. FIELD OF THE INVENTION

[0003] The present invention relates generally to apparatuses for housing roofing tools, and more particularly to an adjustable roofing tool box for supporting materials on a pitched roof.

[0004] 2. DESCRIPTION OF RELATED ART

[0005] Numerous apparatuses have been devised for assisting roofers and other construction personnel with handling materials on non-level or slippery surfaces. Over the years, some of the most significant advances have involved the development of temporary or on-site support structures for tools and other construction hardware, such as buckets, drill bits, nails, and screwdrivers. However, none of the references herein described presents a knockdown roof tool box which provides a stable, level support surface, which is easily adapted to almost any conventional inclined roof, and which allows its users to conveniently have all the necessary tools and hardware at hand.

[0006] For example, U.S. Pat. No. 5,232,187, issued on Aug. 3, 1993, to John B. O'Farrell et al. describes a device for leveling and stabilizing a paint bucket on an inclined surface, which includes a wedge-shaped housing having a cavity formed in an upper surface for insertion of the paint bucket therein.

[0007] U.S. Pat. No. 5,511,662, issued on Apr. 30, 1996, to Dennis J. Amoroso et al. discusses a retainer for holding a plurality of tools, including a retention layer having opposed first and second sides and a planar, horizontally disposed top containing a plurality of openings supported by a more rigid interlocking base layer.

[0008] U.S. Pat. No. 5,546,671, issued on Aug. 20, 1996, to Ted P. Kehoe, relates to a multi-purpose roofing tool kit containing tools which can be used to cut and install shingles or tiles while standing on a slanted roof surface under precarious conditions.

[0009] U.S. Pat. No. 5,570,864, issued on Nov. 5, 1996, to Juan R. Flores, describes an adjustable roofing stool for supporting a person and materials on a pitched roof, including a pedestal adapted to be placed in contact with the surface of a pitched roof, and a positioning mechanism coupled between the pedestal and seat for fixing the angular relationship of the seat relative to the pedestal.

[0010] U.S. Pat. No. 5,609,322, issued on Mar. 11, 1997, to William R. Bond, presents a portable utility jack for use on an inclined roof or a flat roof. The utility jack is constructed from a mainframe which has at least one support frame which is adjustable to several positions to accommodate various roof pitches in conjunction with a platform tray for the level support of various construction or paint tools, materials, and supplies.

[0011] U.S. Pat. No. 5,913,782, issued on Jun. 22, 1999, to Gary J. Monoco et al., describes a knockdown roof platform for use on an inclined roof, including collapsible locking brackets which are adjustable so as to secure the table structure and the upright leg structure at right angles. The collapsible locking bracket allows for the collapsing of the table structure and the upright leg structure out of right angle relation relative to one another and into a collapsed storage position where the table structure and the upright leg structure extend generally in a parallel relation.

[0012] German Patent Application No. 568,264, published on Dec. 29, 1932, for Emanuel Glatzel, illustrates a bucket structure for placement on a roof.

[0013] U.S. Pat. No. 606,100, issued on Jun. 21, 1898, to Henry G. Thompson, describes a combination paint-bucket with leg-lock members located inside of the bucket and capable of independent adjustment.

[0014] U.S. Design Pat. No. 321,433, issued on Nov. 12, 1991, to Thomas Dickinson, illustrates a hip roof tool box.

[0015] U.S. Design Pat. No. 405,671, issued on Feb. 16, 1999, to Burton S. Klein, shows a combination paint can and tool holder for the roof.

[0016] None of the above inventions and patents, taken either singly or in combination, is seen to describe the instant invention as claimed.

SUMMARY OF THE INVENTION

[0017] The knockdown, roof tool box, according to the invention, provides the user with a convenient level surface upon which to support and hold their tools and other construction materials. Designed for use by roofers, painters, homeowners, and others who need to work on inclined or pitched surfaces, the roof tool box employs a positioning mechanism, allowing it to be fully adjustable with respect to almost any inclined surface. The major components of the invention are a large, central tray portion, a pair of wing-nut and bolt assemblies, a pair of support legs, and adjustable pin assemblies. In assembled position, the tray support legs are positioned in parallel relationship on opposite sides of the tray. And when no longer in use, the tool box may be easily disassembled and stored.

[0018] The tray is pivotally connected to its support legs by the removable wing-nut and bolt assemblies. The central tray portion has an underlying base and upstanding walls, arranged along its periphery, and is generally rectangular in shape. The tray portion also has an upstanding, lateral partition which divides its inner volume into an upper and a lower cavity. However, the central tray may be divided into any number of sections, according to the needs of the user.

[0019] Extending from the front portion of the tray and substantially perpendicular to the front wall, is a generally rectangular, planar shelf having a series of various sized indentations disposed therethrough. A variety of differently shaped objects may be carried in the shelf. Each tray support leg includes a base and an upstanding wall, the upstanding wall extending in perpendicular relationship to the base and including a handle. Extending integrally upwards from the base is a support flange for providing additional structural support to the wall. The support legs are configured to be mirror images of one another and symmetrical with respect

to the central longitudinal plane intersecting the mid-portion of the tray and normal to its underlying support base. The legs are provided with foot pads for traction when the invention is placed on an inclined surface. And the tray portion, as well as the support legs, are preferably constructed from polymeric material and are injection molded.

[0020] The positioning mechanism includes movable pins, which are insertable through a series of aligned holes provided in the support legs. Each support leg also has a pair of symmetrically aligned pivot holes, each pivot hole being located at the rear portions of the support legs and matched to a corresponding hole disposed through the rear portion of an adjacent side wall. The holes are dimensioned for reception of the winged nut and bolt assemblies. Similarly, found near the front edge of each support leg, are a plurality of symmetrically aligned pairs of adjustment holes with the adjustment holes disposed in spaced curvature with respect to the pivot hole on each support leg. To selectively adjust the tray to a desired angle of inclination, the pins are inserted through the appropriate adjustment hole and adjacent mounting hole. Once each movable pin is inserted in its respective adjustment and mounting holes, the support legs are maintained in a steady, reliable attachment to the tray.

[0021] Accordingly, it is a principal object of the invention to provide a roof tool box that can be used on an inclined surface. It is another object of the invention to provide a roof tool box which may be easily assembled and disassembled. It is a further object of the invention to provide a roof tool box which can hold a variety of different construction elements and other materials for working on a roof, as well as other construction activities.

[0022] It is an object of the invention to provide improved elements and arrangements thereof in an apparatus for the purposes described which is inexpensive, dependable and fully effective in accomplishing its intended purposes.

[0023] These and other objects of the present invention will become readily apparent upon further review of the following specification and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] FIG. 1 is an environmental, perspective view of a roof tool box used by a roofer on a roof according to the present invention.

[0025] FIG. 2 is a perspective view of the roof tool box according to the invention.

[0026] FIG. 3 is an exploded perspective view of the roof tool box according to the invention.

[0027] FIG. 4 is a side elevational view of the roof tool box, showing the roof tool box adjustment for various degrees of incline.

[0028] Similar reference characters denote corresponding features consistently throughout the attached drawings.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0029] The present invention is directed to a roof tool box 10 for supporting and holding construction elements in level relationship to the ground.

[0030] As illustrated in FIG. 1, a view of the roof tool box 10 is depicted in which a user U is shown working on a roof R. The present invention is specially designed for use by roofers, painters, homeowners, and others who need to work on inclined or pitched surfaces. A serious problem faced by many persons who work on roofs is that the various tools and hardware used to repair roofs are unable to be securely retained on the roof's inclined surface. This results in an extremely hazardous situation in which objects tend to either roll or fall off the roof. The roof tool box allows the user to support all the construction elements they need to do a particular job, such as a box of nails, a hammer, drill bits, a saw, and patching materials on a single, convenient, level tray. The roof tool box 10 accomplishes this goal by incorporating a positioning mechanism which allows the tray to be adjustable to several positions to accommodate various roof pitches. In the past, utility jacks have been used for this purpose. However, utility jacks are frequently not adjustable, offer little to no storage, and can be unstable. The present invention presents an important advantage by supplying a secure and stable knockdown tool box 10, which can easily accommodate and be adapted to almost any slanted roof surface.

[0031] In FIG. 2, it can be seen that the major components of the invention are the large, central tray portion 12, a pair of pivot assemblies 14, a pair of support legs 16, and a pair of adjustable pin assemblies 18 for selectively adjusting the orientation of the tray. In assembled position as shown, the tray support legs 16 are positioned in parallel relationship and at right angles with respect to the tray 12. And so the roof tool box 10 is constructed of a central tray portion 12 pivotally supported between a pair of support legs 16, the tray 12 having a support base 46 pivotally fastened to the support legs 16 by removable wing nuts 20 and bolts 48. However, it should be understood that any appropriate fastener can be used, especially those which allow for easy disassembly and storage.

[0032] In FIG. 3, it can be more fully appreciated that the central tray portion 12 has an underlying base 46, an upright front wall 22, parallel sidewalls 24, and a back wall 26, arranged along the periphery thereof, and is generally rectangular in shape. The tray portion 12, preferably, has an upstanding, lateral partition 28 which divides the inner volume of the tray 12 into two cavities, an upper cavity 30 and a lower cavity 32. The tray portion 12 and its various walls 22, 24, 26, and partition 28 are preferably constructed from polymeric material and injection molded. However, the central tray portion 12 can be divided into any number of sections, each section having an upstanding wall disposed therebetween, depending on the specifications of the manufacturer.

[0033] Extending from the front portion of the tray 10 and perpendicular to the front wall 22, is a generally rectangular, planar shelf 34 having a series of various sized holes or indentations, generally 36, disposed therethrough. Thus, a variety of differently shaped objects may be carried in the shelf 34 of the roof tool box 10, such as the hammer 38 shown in ghost lines in FIG. 2. Almost any kind of hardware can be supported such as short screwdrivers, chisels and the like.

[0034] In FIG. 3, it can be seen that each tray support leg 16 comprises a base 38 and an upstanding wall 40, the

upstanding wall extending in perpendicular relationship to the base 38 and including at least one slot 42 disposed therethrough for use as a handle. Extending integrally upwards from the base 38 is a support flange 44 for providing additional structural support to the wall 40. It can now be more fully appreciated that the support legs 16 are configured to be mirror images of one another and symmetrical with respect to the central longitudinal plane intersecting the mid-portion of the tray 12 and normal to its underlying support base 46. In the preferred embodiment of the invention, the support legs 16 are also made of polymeric material, but can be made of any suitably strong and durable substance. The legs 16 are also provided with polymeric frictional pads 54 on the bottom surface of the bases 38 to provide traction when the invention is placed on an inclined surface such as the roof R.

[0035] As it is necessary that the support legs 16 be readily positionable at different angles of inclination relative to the pitch of the roof's surface, a positioning mechanism having movable adjustment pins 50 which are insertable through a series of aligned holes 52 is provided. Each support leg 16 has a pair of symmetrically aligned pivot holes 57, each hole being located at the rear portions of the support legs 16, and matched to a corresponding hole 56 disposed through the rear portion of an adjacent side wall 24. The holes 56 and 57, are dimensioned for reception of the pivot assemblies, which, in the preferred embodiment, as discussed, are bolts 48 and wing nuts 20. Similarly, found near the front edge of each support leg 16, are a plurality of symmetrically aligned pairs of adjustment holes 52, with the adjustment holes disposed in spaced curvature with respect to the pivot hole 56 on each support leg 16.

[0036] To adjust the tray 12 to a certain angle of inclination, each adjustment pin 50 is removably inserted through the appropriately aligned adjustment hole 52 and mounting hole 58, the mounting holes 58 being disposed through the side walls 24. Once each movable adjustment pin 50 is inserted through its respective adjustment hole 52 and mounting hole 58, the support legs 16 are maintained in steady vertical attachment to the tray 12. Thus, an effective way is provided to enable the tray 12 to be adjustable with respect to almost any inclined surface as diagrammatically represented in FIG. 4. Adjustment of the tray 12 to different angles of inclination becomes a simple matter of inserting each pair of adjustment pins 50 at the appropriate, pre-selected height. For example, the tray 12 is shown set at a maximum inclination indicated by the ghost lines at 60 and at an intermediate inclination as indicated by the ghost lines at 70, the respective adjustment pins, 62 and 72, being inserted according to the particular adjustment hole 52 associated with the desired angle of inclination after manually pivoting the tray 12 into position.

[0037] It is to be understood that the present invention is not limited to the sole embodiments described above, but encompasses any and all embodiments within the scope of the following claims.

I claim:

1. A knockdown, adjustable roof tool box comprising:
 - a generally rectangular tray for supporting a plurality of construction elements thereon; and
 - two parallel tray support legs removably and pivotally connected to said tray and selectively adjustable for

fixing the angular orientation of said tray relative to said two support legs for positioning said tray on an inclined surface.

2. The adjustable roof tool box of claim 1, wherein each said tray support leg comprises a base and an upstanding wall, said upstanding wall extending in perpendicular relationship from said base and including a slot disposed thereon, said slot being dimensioned for the reception of a hand.

3. The adjustable roof tool box of claim 1, wherein said tray includes a base and upstanding walls and at least one partition between said upstanding walls to form a plurality of compartments for selectively storing and providing support for construction elements.

4. The adjustable roof tool box of claim 1, wherein said tray is pivotally connected to each said tray support leg by a removable wing nut.

5. The adjustable roof tool box of claim 1, wherein said each tray support leg comprises a base and an upstanding wall, said upstanding wall extending in perpendicular relationship from said base and including a slot disposed thereon as a handle, each said support leg including a pivot hole and a plurality of symmetrically aligned adjustment holes with the adjustment holes disposed in spaced curvature with respect to the pivot hole on each support leg adjacent a front edge thereof, said adjustment holes being utilized for selectively adjusting the angular orientation of said tray.

6. The adjustable roof tool box of claim 5, wherein said tray is selectively attached to each support leg by a removable adjustment pin.

7. An adjustable roof tool box comprising:

- a generally rectangular tray for supporting construction elements stably received thereon;

- a pair of parallel, symmetrically spaced, and selectively adjustable support legs, said support legs having a pair of symmetrically aligned pivot holes and a plurality of symmetrically aligned pairs of adjustment holes with the adjustment holes disposed in spaced curvature with respect to the pivot hole on each support leg adjacent a front edge thereof, said tray being pivotally supported between said pair of support legs.

8. The adjustable roof tool box of claim 7, wherein each said support leg comprises a base and an upstanding wall, said upstanding wall extending in perpendicular relationship from said base and including at least one slot disposed thereon.

9. The adjustable roof tool box of claim 7, wherein said tray includes a base and upstanding walls and at least one partition between said upstanding walls to form a plurality of compartments for selectively storing and providing level support for said construction elements.

10. The adjustable roof tool box of claim 7, wherein said tray is pivotally connected to said pair of support legs by removable wing nuts.

11. The adjustable roof tool box of claim 7, wherein each of said pair of support legs comprises a base and an upstanding wall, said upstanding wall extending in perpendicular relationship from said base and including at least one slot disposed thereon for use as a handle.

12. The adjustable roof tool box of claim 11, further comprising a pad made from a polymeric material having a high coefficient of friction attached to the base of each said support leg in order to prevent the tool box from sliding on a roof surface.

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